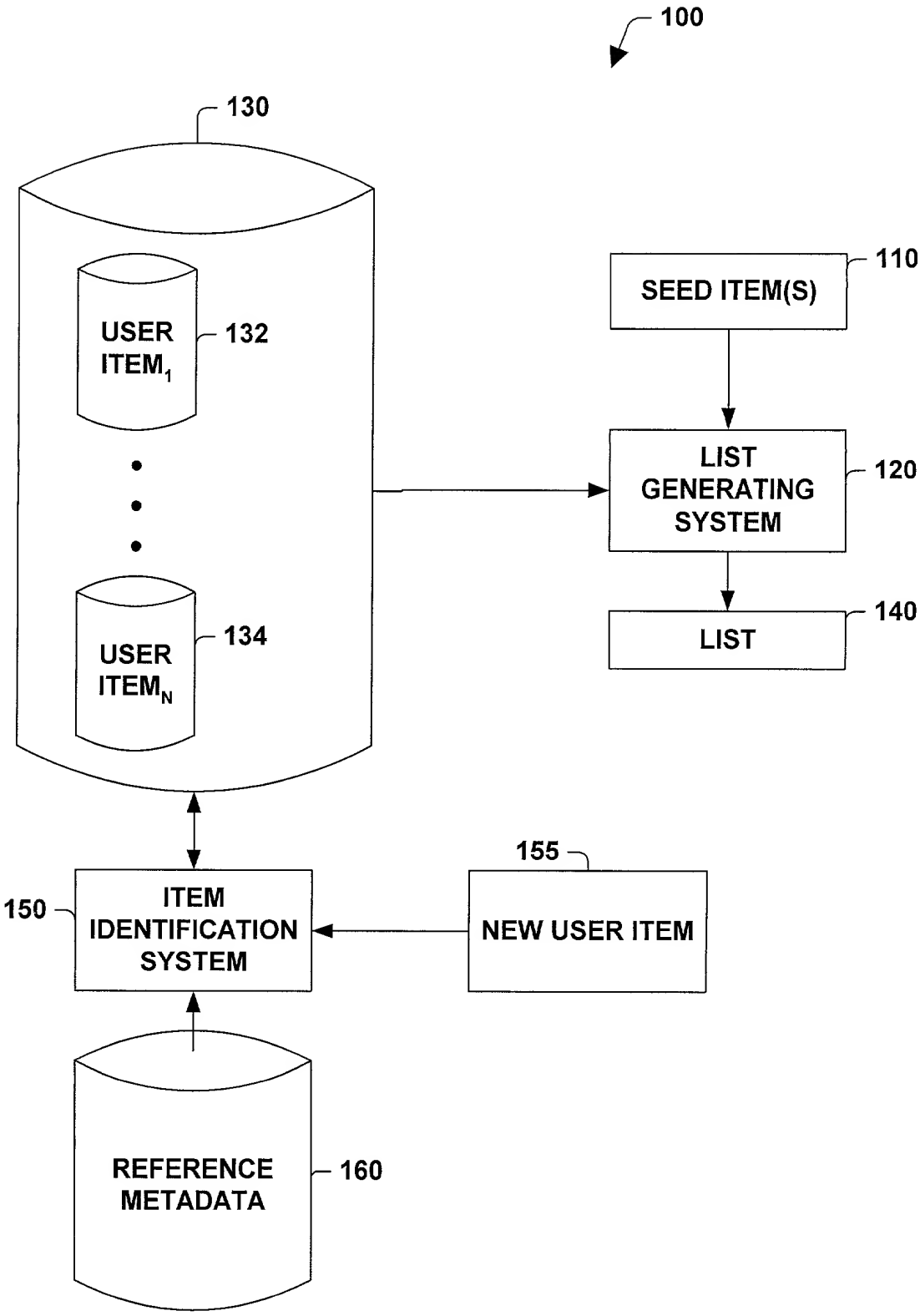

100
130
USER ITEM$_1$
132
USER ITEM$_N$
134
SEED ITEM(S)
110
LIST GENERATING SYSTEM
120
LIST
140
155
NEW USER ITEM
150
ITEM IDENTIFICATION SYSTEM
REFERENCE METADATA
160

FIG. 1

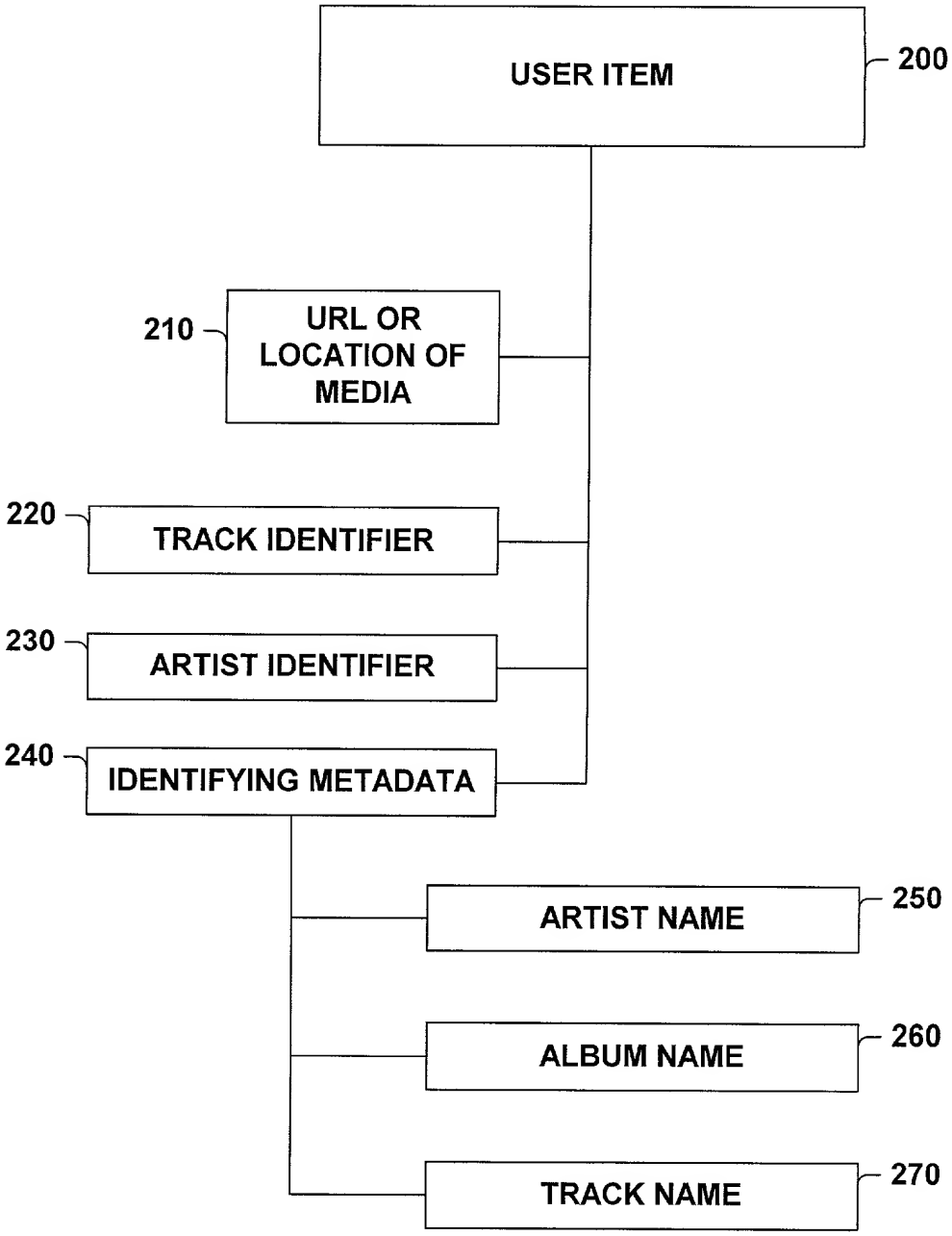

USER ITEM
200
210
URL OR LOCATION OF MEDIA
220
TRACK IDENTIFIER
230
ARTIST IDENTIFIER
240
IDENTIFYING METADATA
ARTIST NAME
250
ALBUM NAME
260
TRACK NAME
270

FIG. 2

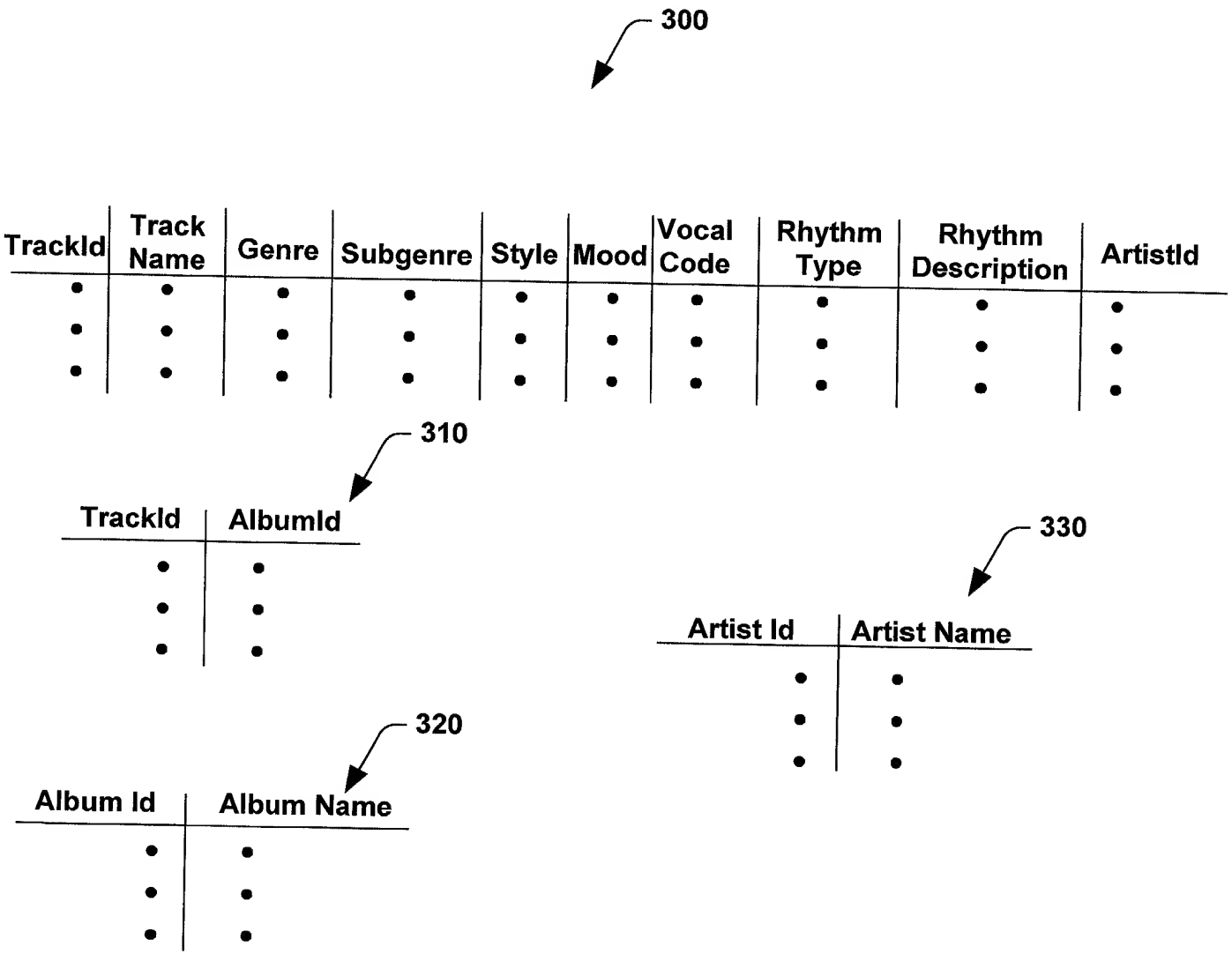

300
TrackId
Track Name
Genre
Subgenre
Style
Mood
Vocal Code
Rhythm Type
Rhythm Description
ArtistId
310
TrackId
AlbumId
330
Artist Id
Artist Name
320
Album Id
Album Name

FIG. 3

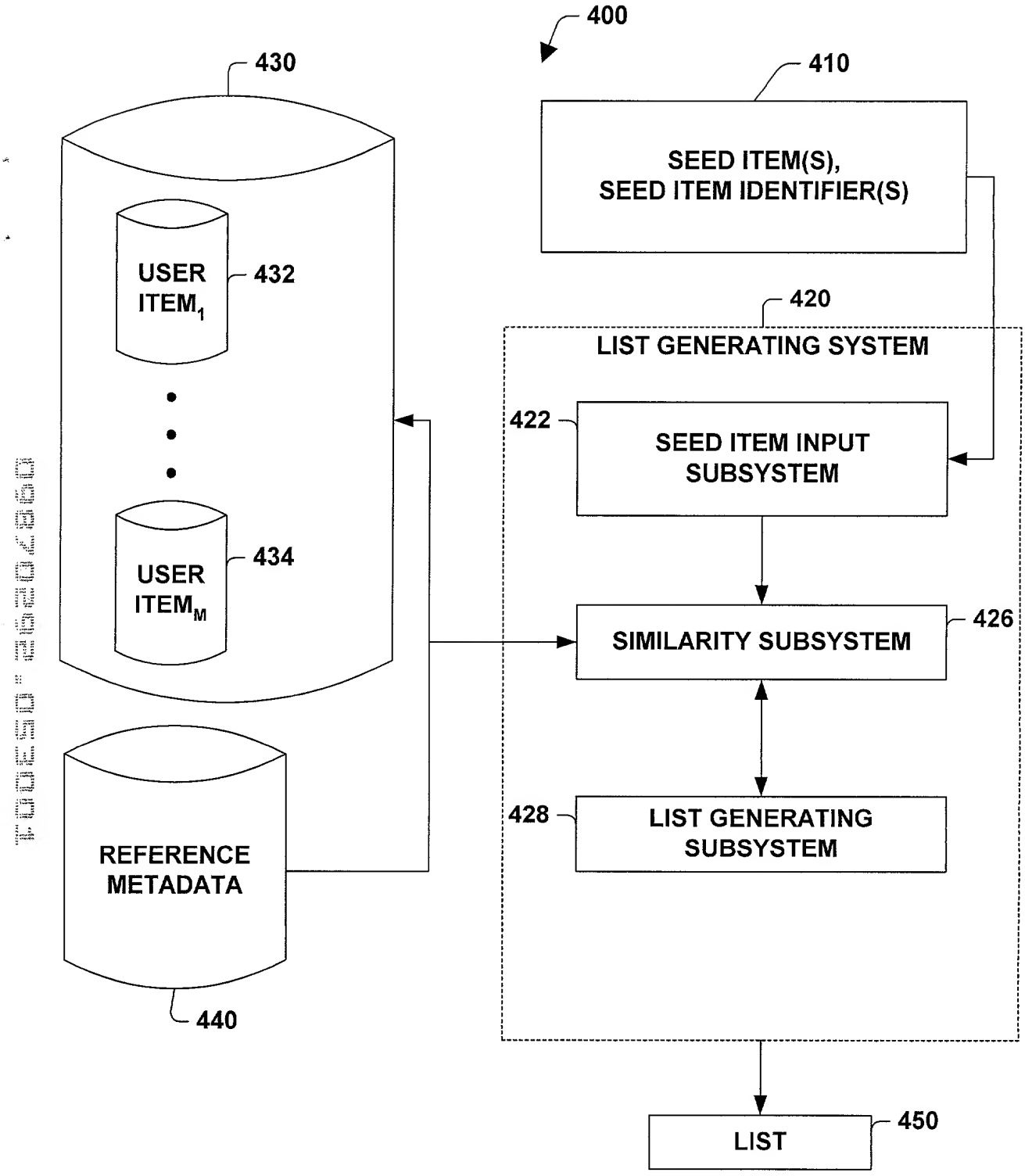

400
430
410
SEED ITEM(S),
SEED ITEM IDENTIFIER(S)
USER
ITEM1
432
420
LIST GENERATING SYSTEM
422
SEED ITEM INPUT
SUBSYSTEM
USER
ITEMM
434
SIMILARITY SUBSYSTEM
426
REFERENCE
METADATA
428
LIST GENERATING
SUBSYSTEM
440
LIST
450

FIG. 4

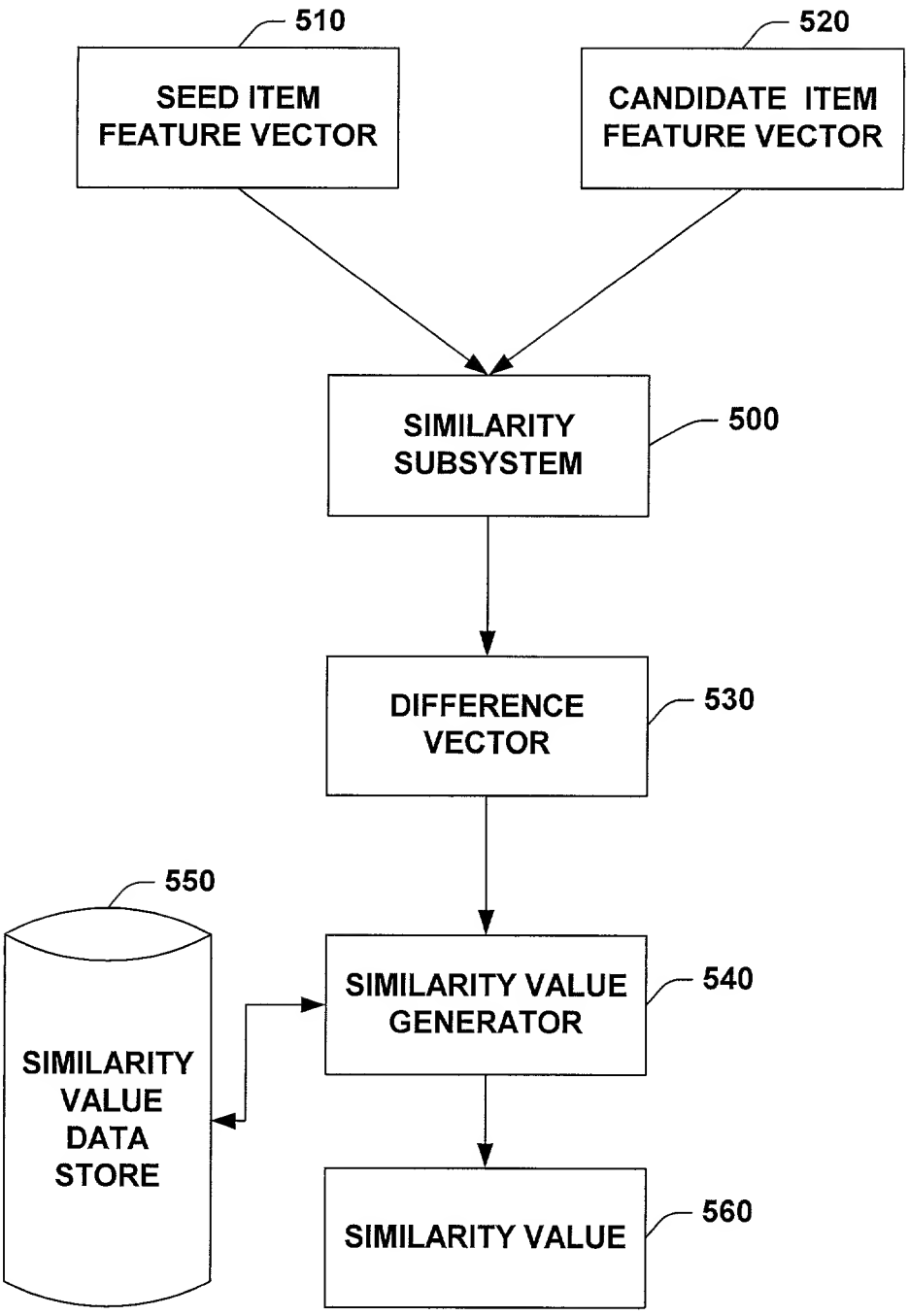

510
SEED ITEM FEATURE VECTOR
520
CANDIDATE ITEM FEATURE VECTOR
SIMILARITY SUBSYSTEM
500
DIFFERENCE VECTOR
530
550
SIMILARITY VALUE DATA STORE
SIMILARITY VALUE GENERATOR
540
SIMILARITY VALUE
560

FIG. 5

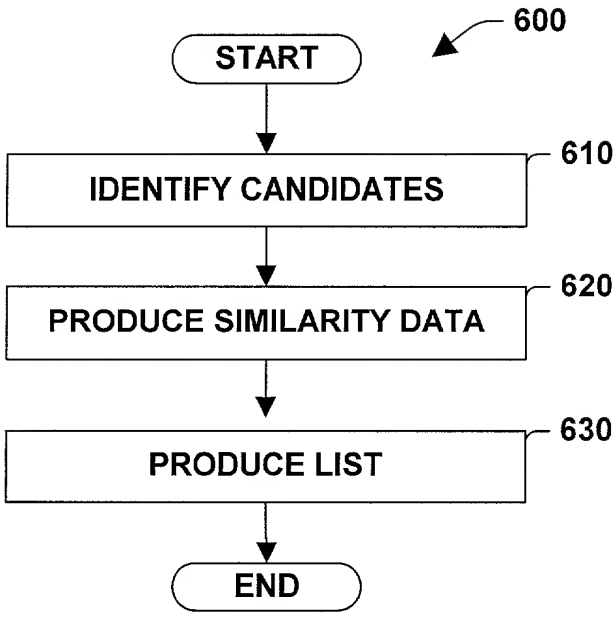

600
START
IDENTIFY CANDIDATES
610
PRODUCE SIMILARITY DATA
620
PRODUCE LIST
630
END

FIG. 6

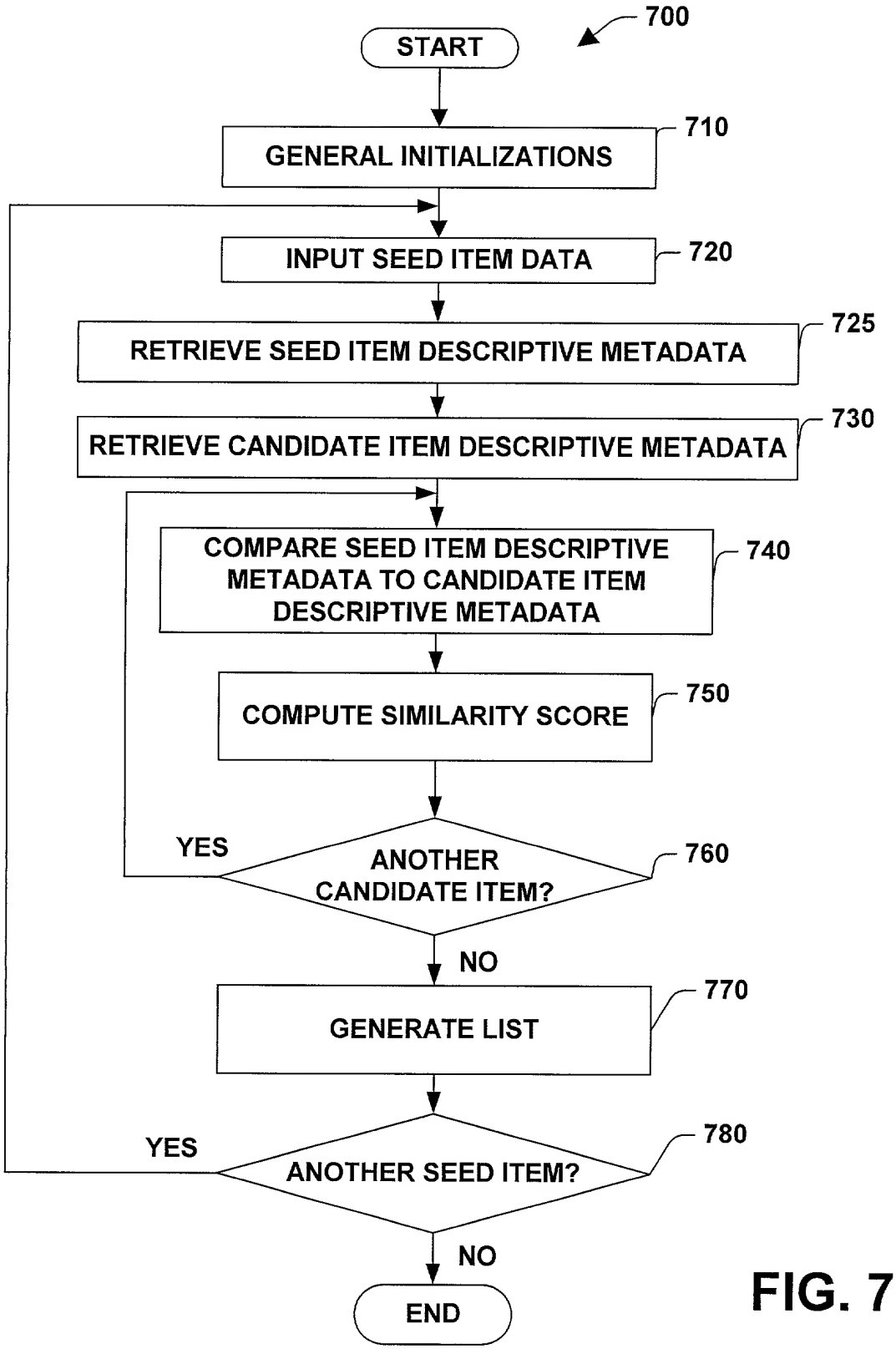

700
START
GENERAL INITIALIZATIONS
710
INPUT SEED ITEM DATA
720
RETRIEVE SEED ITEM DESCRIPTIVE METADATA
725
RETRIEVE CANDIDATE ITEM DESCRIPTIVE METADATA
730
COMPARE SEED ITEM DESCRIPTIVE METADATA TO CANDIDATE ITEM DESCRIPTIVE METADATA
740
COMPUTE SIMILARITY SCORE
750
YES
ANOTHER CANDIDATE ITEM?
760
NO
GENERATE LIST
770
YES
ANOTHER SEED ITEM?
780
NO
END

FIG. 7

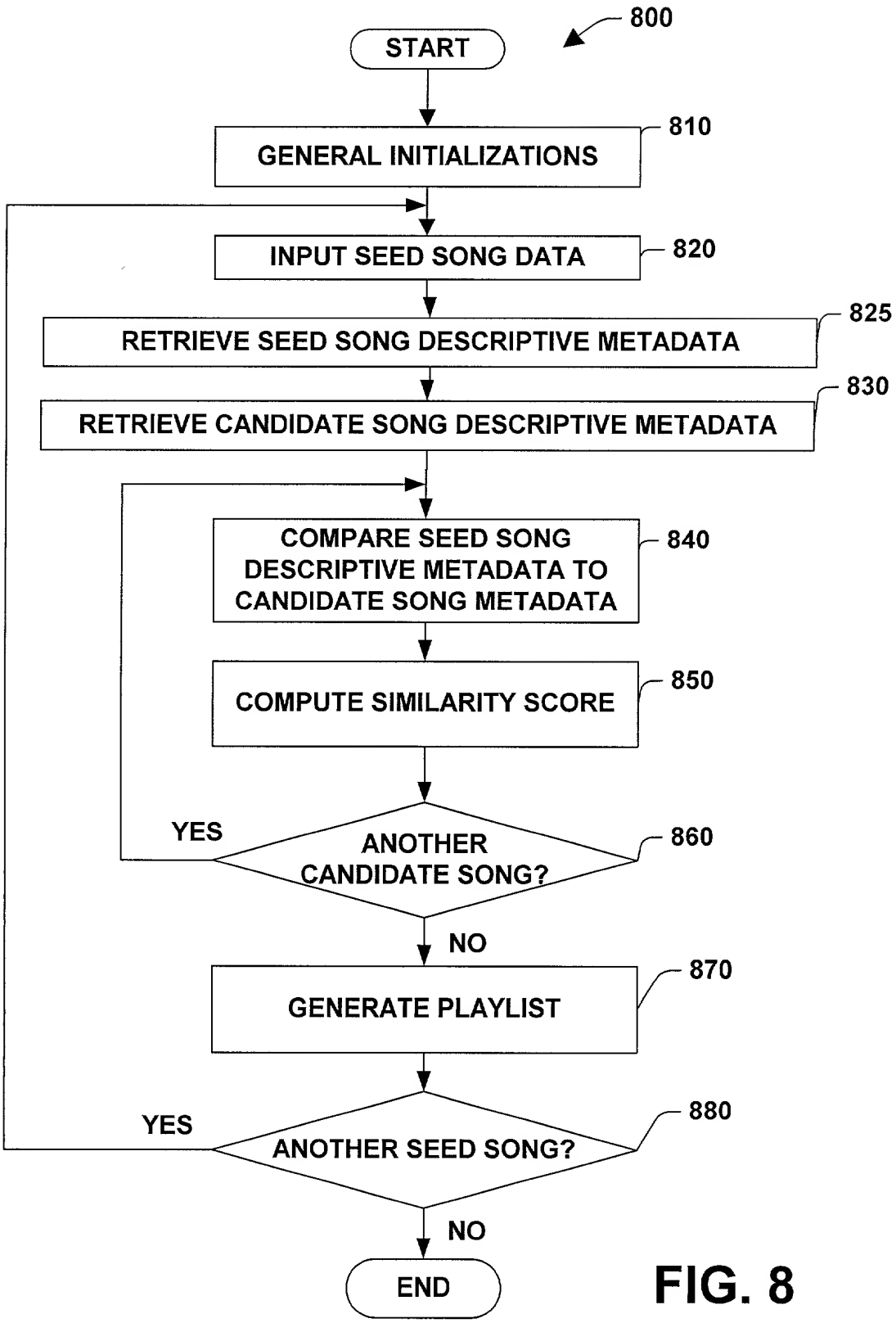

800
START
GENERAL INITIALIZATIONS
810
INPUT SEED SONG DATA
820
RETRIEVE SEED SONG DESCRIPTIVE METADATA
825
RETRIEVE CANDIDATE SONG DESCRIPTIVE METADATA
830
COMPARE SEED SONG DESCRIPTIVE METADATA TO CANDIDATE SONG METADATA
840
COMPUTE SIMILARITY SCORE
850
YES
ANOTHER CANDIDATE SONG?
860
NO
GENERATE PLAYLIST
870
YES
ANOTHER SEED SONG?
880
NO
END

FIG. 8

```
FOR EACH REFERENCE TRACK
    IF ARTIST ID NOT SAME AS PREVIOUS REFERENCE TRACK THEN
        CLEAR USER SONG ARTIST VOTES
        SPLIT ARTIST NAME INTO WORDS,CANONICALIZE WORDS

        FOR EACH ARTIST WORD
            INCREMENT USER SONG ARTIST VOTE FOR USER SONG
                ARTIST NAMES THAT CONTAIN ARTIST WORD
        END FOR
        FOR EACH USER THAT RECEIVED AT LEAST ONE ARTIST VOTE
            COMPUTE ARTIST MATCHING SCORE
            IF ARTIST MATCHING SCORE IS ABOVE THRESHOLD
                AND ARTIST MATCHING SCORE BETTER THAN
                PREVIOUS ARTIST MATCHING SCORE THEN
                    ARTIST ID OF USER SONG =
                        ARTIST ID OF REFERENCE TRACK
            ENDIF
        END FOR
    END IF

    SELECT USER SONGS WHOSE TRACK NAME MATCHES FIRST N
        CHARACTERS OF REFERENCE TRACK NAME

    IF NO USER SONGS MATCH THEN, RETURN,  ENDIF

    SPLIT REFERENCE TRACK NAME INTO WORDS, CANONICALIZE WORDS
    CLEAR USER SONG TRACK VOTES
    FOR EACH TRACK WORD
        INCREMENT USER SONG TRACK VOTE FOR USER SONG TRACK
            NAMES THAT CONTAIN TRACK WORD
    END FOR
    FOR EACH USER SONG THAT RECEIVED AT LEAST ONE ARTIST VOTE
        ADD USER SONG ARTIST VOTE TO USER SONG TRACK VOTE
    END FOR
    FOR EACH USER SONG THAT HAS AT LEAST ONE TRACK VOTE
        COMPUTE TRACK MATCHING SCORE
        IF TRACK MATCHING SCORE IS ABOVE THRESHOLD AND TRACK
         MATCHING SCORE IS BETTER THAN PREVIOUS TRACK
         MATCHING SCORE
            USER SONG TRACK ID =  TRACK ID OF REFERENCE TRACK
        END IF
    END FOR
END FOR
```

FIG. 9

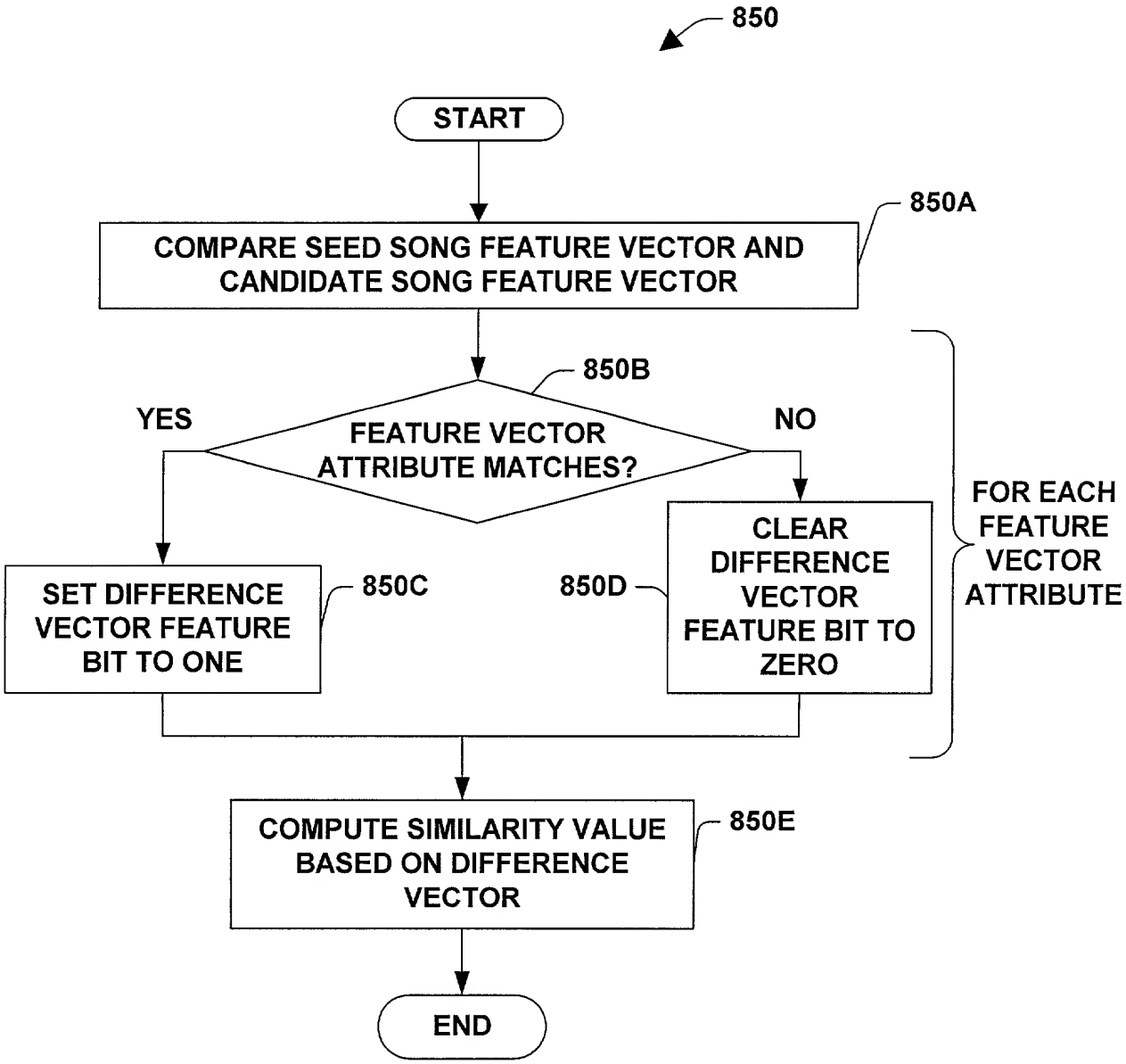

850
START
850A
COMPARE SEED SONG FEATURE VECTOR AND CANDIDATE SONG FEATURE VECTOR
850B
FEATURE VECTOR ATTRIBUTE MATCHES?
YES
NO
SET DIFFERENCE VECTOR FEATURE BIT TO ONE
850C
850D
CLEAR DIFFERENCE VECTOR FEATURE BIT TO ZERO
FOR EACH FEATURE VECTOR ATTRIBUTE
COMPUTE SIMILARITY VALUE BASED ON DIFFERENCE VECTOR
850E
END

FIG. 10

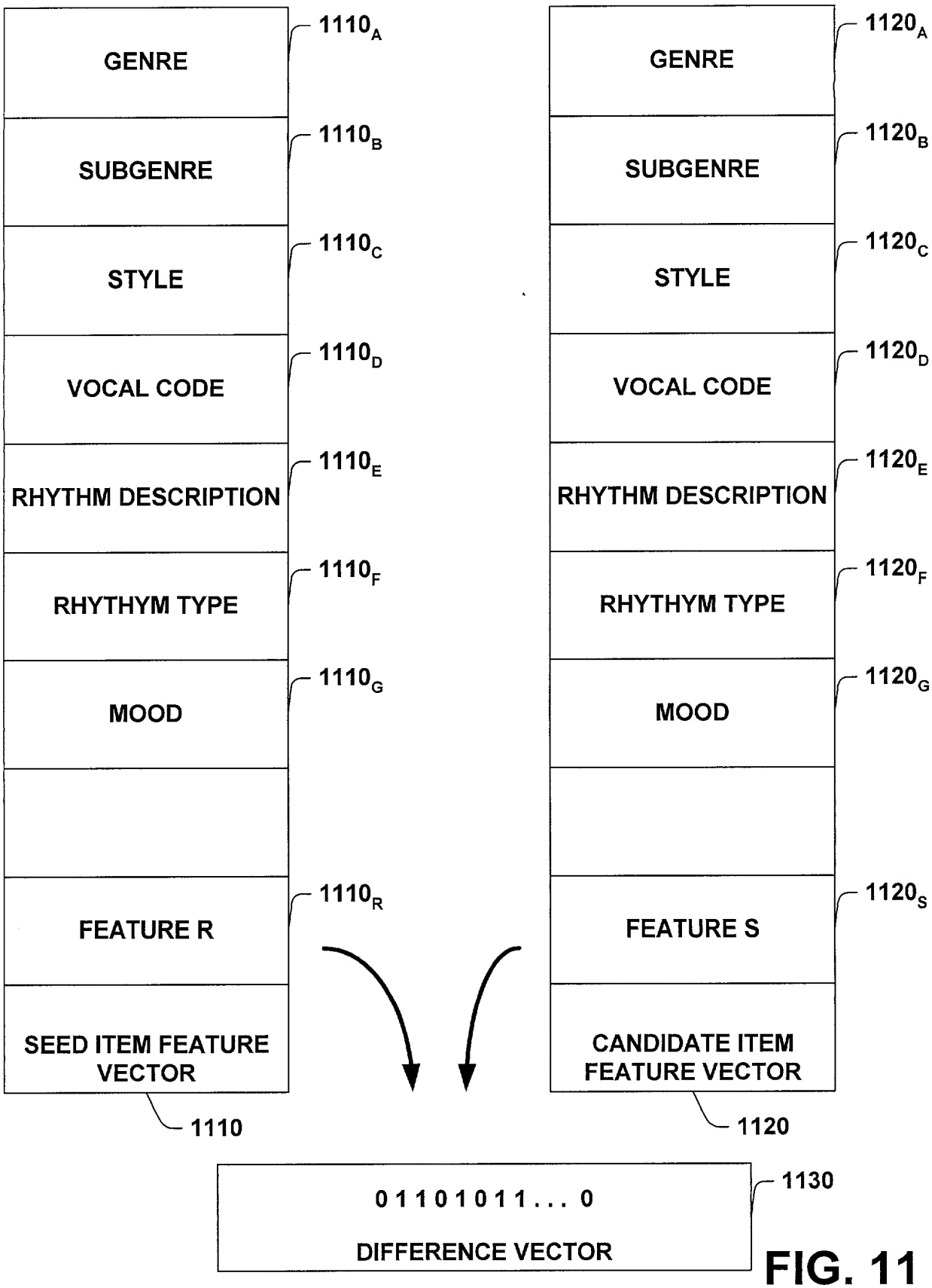

GENRE
SUBGENRE
STYLE
VOCAL CODE
RHYTHM DESCRIPTION
RHYTHYM TYPE
MOOD
FEATURE R
SEED ITEM FEATURE VECTOR
1110
1110A
1110B
1110C
1110D
1110E
1110F
1110G
1110R
GENRE
SUBGENRE
STYLE
VOCAL CODE
RHYTHM DESCRIPTION
RHYTHYM TYPE
MOOD
FEATURE S
CANDIDATE ITEM FEATURE VECTOR
1120
1120A
1120B
1120C
1120D
1120E
1120F
1120G
1120S
0 1 1 0 1 0 1 1 . . . 0
DIFFERENCE VECTOR
1130

FIG. 11

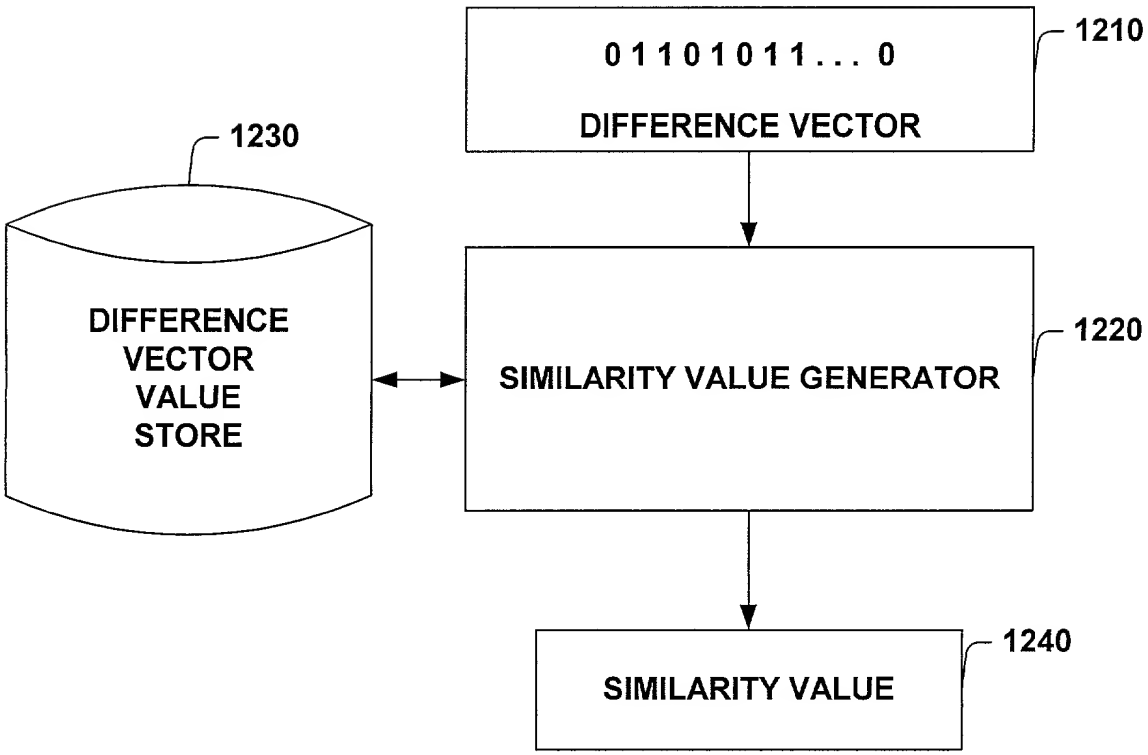

0 1 1 0 1 0 1 1 . . . 0
DIFFERENCE VECTOR
1210
1230
DIFFERENCE VECTOR VALUE STORE
SIMILARITY VALUE GENERATOR
1220
SIMILARITY VALUE
1240

FIG. 12

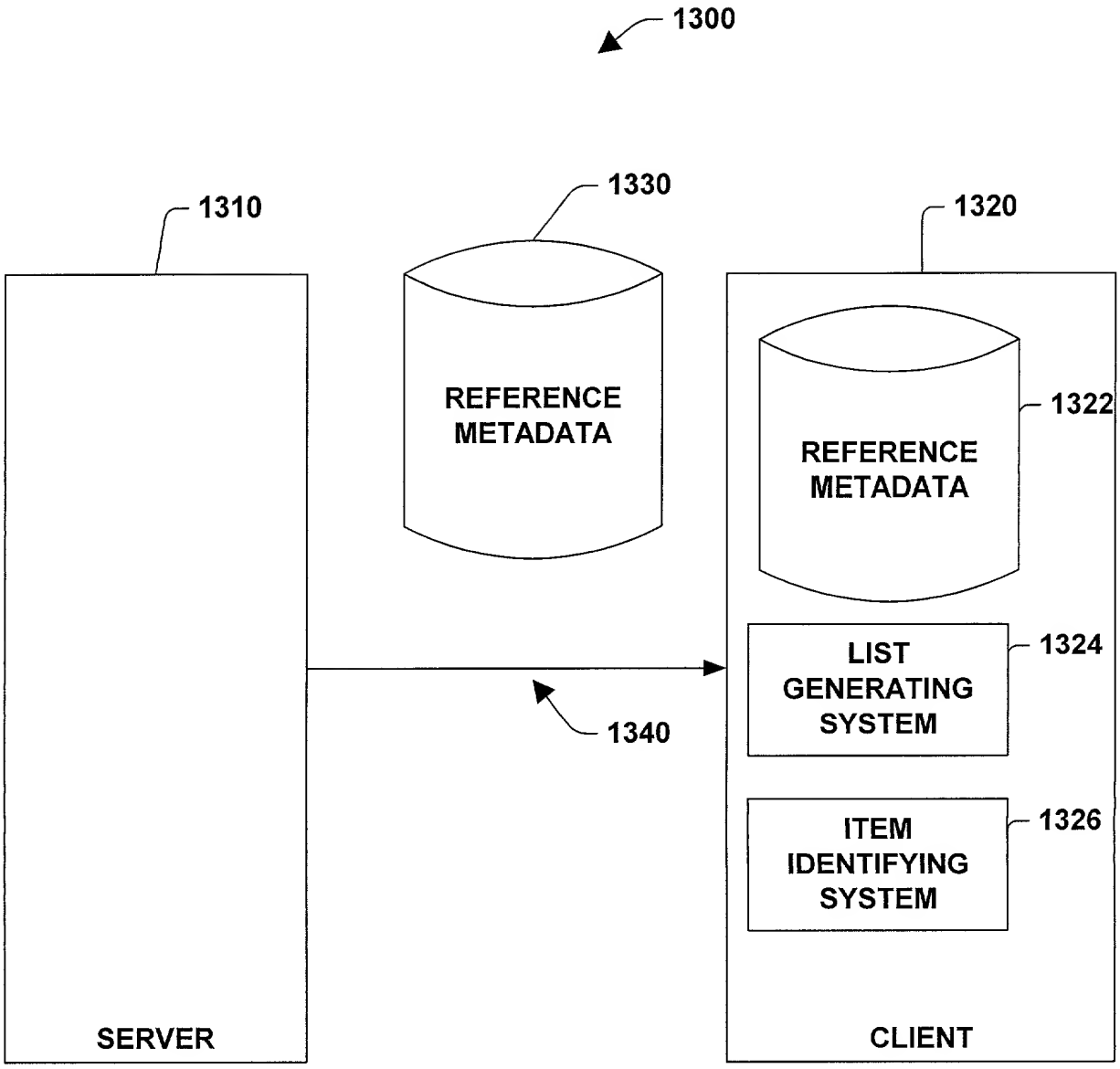

1300
1310
1330
1320
REFERENCE METADATA
REFERENCE METADATA
1322
LIST GENERATING SYSTEM
1324
1340
ITEM IDENTIFYING SYSTEM
1326
SERVER
CLIENT

FIG. 13

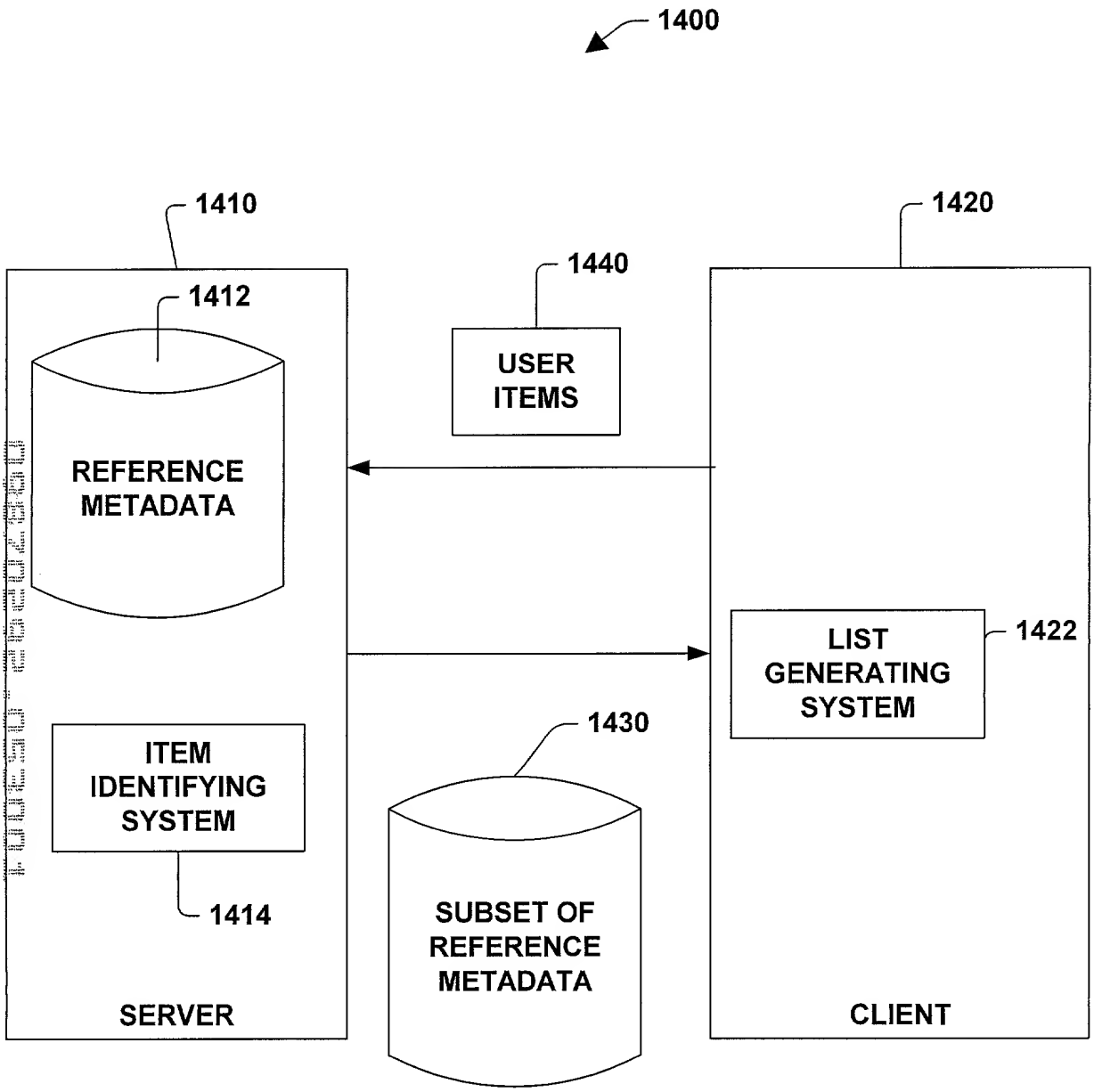

1400
1410
1420
1412
1440
USER ITEMS
REFERENCE METADATA
LIST GENERATING SYSTEM
1422
1430
ITEM IDENTIFYING SYSTEM
1414
SUBSET OF REFERENCE METADATA
SERVER
CLIENT

FIG. 14

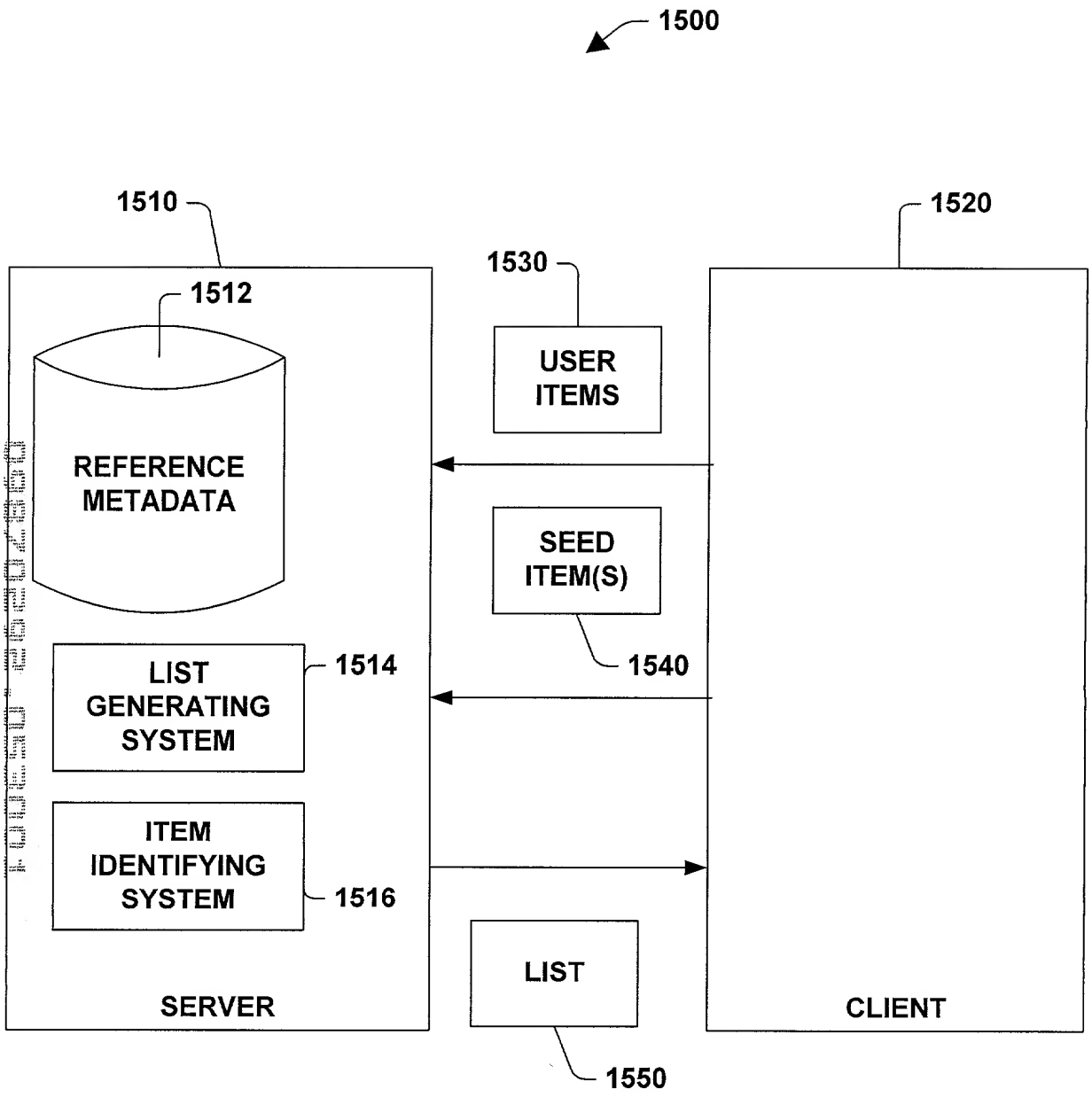
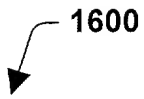

1500
1510
1520
1530
1512
USER ITEMS
REFERENCE METADATA
SEED ITEM(S)
1540
LIST GENERATING SYSTEM
1514
ITEM IDENTIFYING SYSTEM
1516
LIST
SERVER
CLIENT
1550

FIG. 15




```
IF SEED SONG HAS TRACK ID THEN
        SEED LIST = SEED SONG
ELSE IF SEED SONG HAS ARTIST ID THEN
        SEED LIST = ALL USER SONGS WITH SAME ARTIST ID
ELSE
        FINAL LIST = ALL USER SONGS WITH SAME ARTIST NAME
                                AS SEED SONG
        RETURN FINAL LIST
END IF

FOR EACH USER SONG WITH TRACK OR ARTIST ID

        IF USER SONG HAS TRACK ID THEN
                USER LIST = USER SONG
        ELSE IF USER SONG HAS ARTIST ID THEN
                CHECK CACHE FOR SIMILARITY OF SEED TO ARTIST ID

                IF SIMILARITY VALUE IS IN CACHE
                        ADD USER SONG AND SIMILARITY TO FINAL LIST
                        GO TO NEXT USER SONG
                END IF
                USER LIST = ALL USER SONGS WITH SAME ARTIST ID
        END IF

        COMPUTE LIMITS TO SIMILARITY COMPUTATION
        COMPUTE SIMILARITY OVER ALL POSSIBLE PAIRS OF SONGS
                ON SEED LIST AND USER LIST, SUBJECT TO LIMITS
        SIMILARITY VALUE = MEAN SIMILARITY OVER PAIRS

        IF USER SONG HAS NO TRACK ID
                STORE SIMILARITY IN CACHE
        END IF

        ADD USER SONG AND SIMILARITY TO FINAL LIST
END FOR

SORT FINAL LIST BE DECREASING SIMILARITY

RETURN FINAL LIST
```

FIG. 16

Exhibit 2 Page 0350

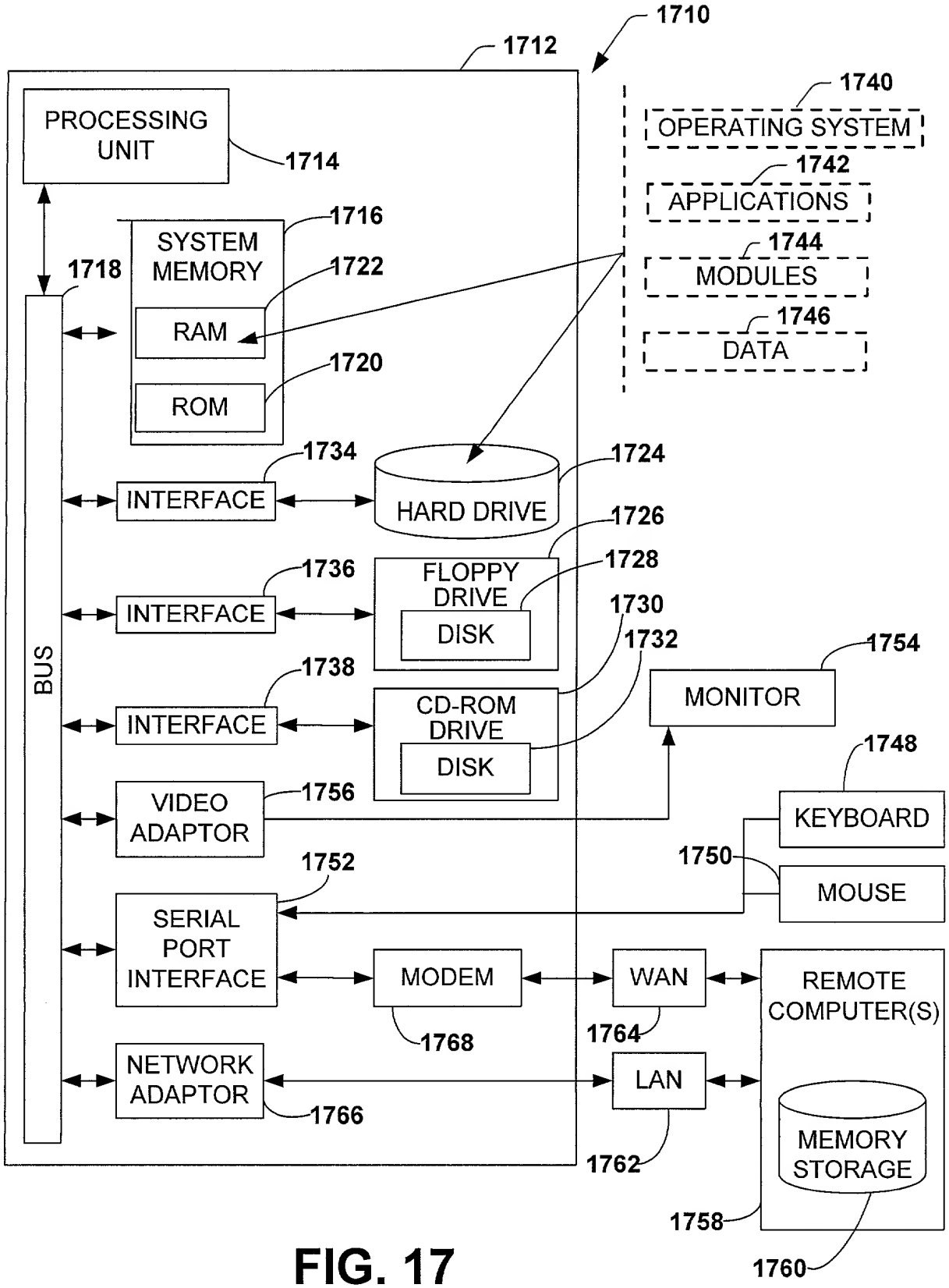

1710
1712
PROCESSING UNIT
1714
1740
OPERATING SYSTEM
1742
APPLICATIONS
1744
MODULES
1746
DATA
1716
SYSTEM MEMORY
1718
1722
RAM
1720
ROM
BUS
1734
INTERFACE
HARD DRIVE
1724
1726
1736
INTERFACE
FLOPPY DRIVE
1728
DISK
1730
1732
1738
INTERFACE
CD-ROM DRIVE
DISK
1754
MONITOR
1748
KEYBOARD
1750
MOUSE
1756
VIDEO ADAPTOR
1752
SERIAL PORT INTERFACE
MODEM
1768
WAN
1764
REMOTE COMPUTER(S)
NETWORK ADAPTOR
1766
LAN
1762
MEMORY STORAGE
1758
1760

FIG. 17

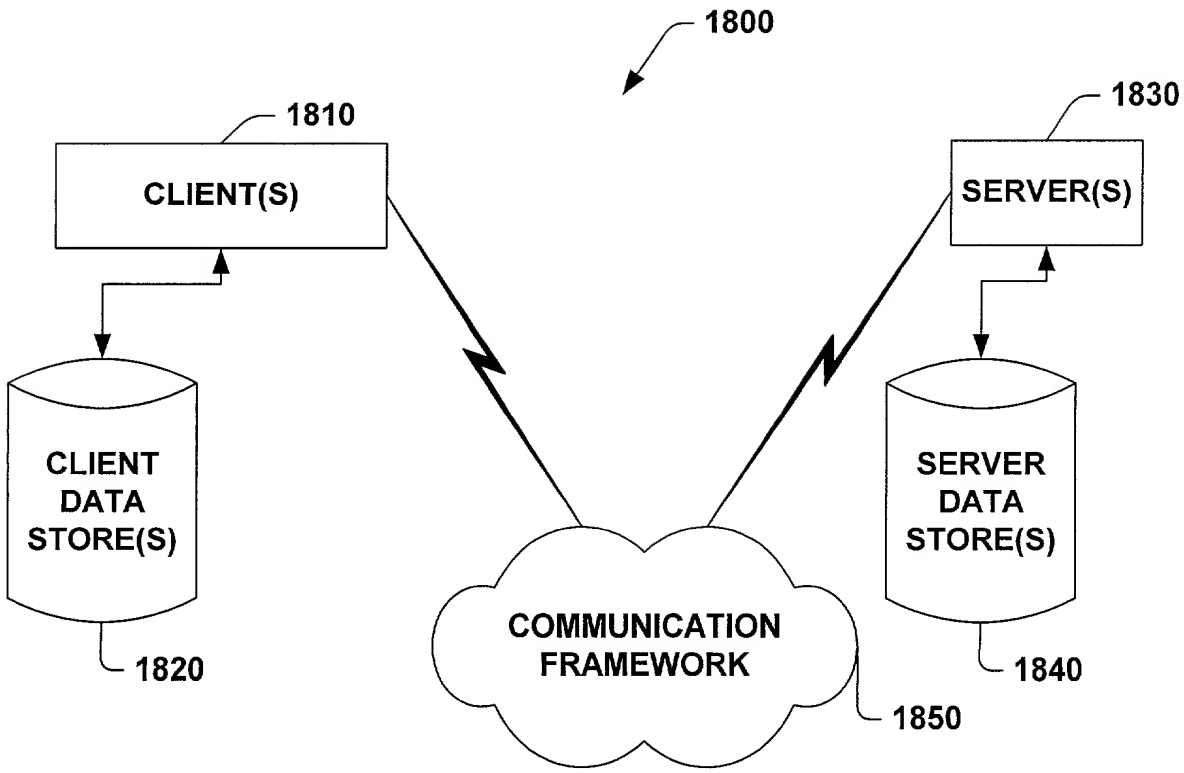

1800
1810
CLIENT(S)
1830
SERVER(S)
CLIENT DATA STORE(S)
1820
COMMUNICATION FRAMEWORK
1850
SERVER DATA STORE(S)
1840

FIG. 18